reproduced some few years since in these pages (NATURE, vol. xv. p. 406). Purchased by the Earl of Crawford in 1881, it formed part of his generous gift to the Royal Observatory, Edinburgh. The illustrations in the body of the work, consisting of plans and elevations of Uraniborg, portrayals of the instruments, later residences, and tomb, of its whilom inmate, are both interesting and well executed. The last represents the figure carved in red marble on the monument to Tycho Brahe in the Teynkirche at Prague. Its martial aspect corresponds with the feudal pomp amid which his remains were borne to their last resting-place. Not recumbent, though sleeping, he stands erect, clad in full armour, a plumed helmet on one side, an emblazoned shield on the other, a sword grasped in his left hand. Nothing recalls the genuine quality of his life except the globe upon which his right hand rests, and the inscription from his demolished observatory, "Nec fasces nec opes, sola artis sceptra perennant."

A. M. CLERKE.

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## TWO NEW PSYCHOLOGIES.

*A New Psychology: an Aim at Universal Science.* By the Rev. George Jamieson, D.D., &c. (Edinburgh: Andrew Elliott, 1890.)

*Hand-book of Psychology: Senses and Intellect.* By Prof. J. M. Baldwin, M.A., Ph.D. (London: Macmillan and Co., 1890.)

WE are quite ready to allow Dr. Jamieson that, as he claims in his preface, his work is strictly original. We do not think, however, that he need fear that, because it emanates from a clergyman, it will be any the less attentively considered by any competent persons. The reasonings and speculations, in another branch of science, of Dean Conybeare, of Prof. Sedgwick, of Dr. Bonney, or of Mr. Osmond Fisher, have, so far as we can judge, in no wise suffered from this cause. And if there were any value in the reasonings and speculations of Dr. Jamieson, in the realm of psychology and philosophy, they would be as readily and thankfully accepted as those of Bishop Berkeley or Dr. Mansell. But, in truth, however well grounded in theology, Dr. Jamieson's little book gives abundant evidence that he is not very thoroughly grounded in more mundane branches of science.

It is impossible to summarize briefly this "new psychology." We therefore content ourselves with giving two or three extracts which we consider representative, and must then leave such of our readers as aspire to fuller knowledge to worry through the book for themselves.

"It is of enormous moment," we are told, "to understand what it is that really constitutes the soul, as well as to apprehend under what circumstances the soul is constituted. We know of no other substance, as absolute and eternal, than that of Ether. It is absolute in two important respects, *first*, as positive and conditioned, and *second*, as negative and unconditioned."

"If it holds good, as a fact throughout all nature, that material structures have their conditions represented by an immediate encompassment of their delineation in Ether, and if it holds equally good, that in the animal frame generally, and especially in man as the highest exemplification, there is a nerve system in the body known as the 'sympathetic,' and carrying its affections, *i.e.* conducting the states of the living body to one single pole or axis, as the terminal of concentration,—as the pivot whereon the assembled conditions of animal states are manifested, what follows in the first place, as the necessary result of this concentration? Why, surely this, that precise analogy with all that we know, as express revelations in our experience must, in this particular case, be the actual outcome of an Etherial Image or representation of this complex animal self-hood."

"The very fact of our discovery that the pure Etherial Medium, as spirit-substance, is ever present as the fundamental mainspring of operation, in the linking together of conditions in the material world, opens the door of apprehension for us to comprehend the inter-workings of Brain, in producing the phenomena of Mind, as manifested in the Soul or Ego of each personality."

A very different book is the first instalment of Prof. Baldwin's "Hand-book of Psychology," of which a second and revised edition is before us. Well arranged, carefully thought out, clearly and tersely written, it will be welcomed in this country as it has been welcomed in America. That it views psychology from a standpoint somewhat different from that which Mr. Sully takes up in his "Outlines" will render it none the less acceptable to English students.

An interesting and important section is devoted to "consciousness and the unconscious," and Prof. Baldwin brings out very clearly the difficulties that attend the view that mental phenomena may be unconscious. He notes that it is often the case that an association between states of mind is accomplished without conscious links of connection, and that consequently the links of connection must be unconscious. He thinks it unsatisfactory, however, to say that the unconscious links are states of mind. "The missing links in broken chains of associations," he contends, "may be supplied from dynamic connections in the cerebral substance." But there are many people who think that it is as inconvenient as it is unphilosophical to dodge backwards and forwards from the brain to the mind. Either mental states are of a different phenomenal order from physical states or they are not. If they are not, let us at once say that just as the lachrymal gland produces tears so does the brain produce consciousness. If they are, then let us, so far as is possible, avoid hopping backwards and forwards from one to the other. The fact is, this question cannot be discussed without touching on the philosophical basis of psychology. Our own opinion is that we should be aided here by that most reprehensible procedure—the coinage of a new term. Believing, as we do, that mind never has been, and never could be, evolved from matter, the question arises, From what, then, have mental states (psychoses) been evolved? If a similar question be asked with regard to molecular vibrations in the brain (neuroses), the answer is not difficult. Complex neuroses have been evolved from less complex neuroses; these from simple neuroses; these again from organic modes of motion which can no longer be called neuroses at all; and these perchance, once more, from modes of motion which can no longer be called organic. But in the case of psychoses, from what have they been evolved? Complex psychoses have been evolved from less complex psychoses; these from simple psychoses; and these, again, from—what? From other and simpler modes of—something which answers on the subjective side to the

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organic modes of motion. For this we might use some such term as *metakinesis*. Neuroses are kinetic manifestations; states of consciousness are metakinetic manifestations. But, as neuroses are evolved from kinetic states (kineses) of a lower order, so have psychoses been evolved from metakinetic states (metakineses) of a lower order. According to this view, every mode of organic or neural kinesis has its concomitant mode of metakinesis, and, when the kinetic manifestations assume the form and intensity of neuroses in certain parts of the human brain, the metakinetic manifestations assume the form of human consciousness. Instead, therefore, of jumping across, with Prof. Baldwin, from psychical to physiological states, we would suggest that, from the point of view of psychology, the intermediate states are metakineses, which do not reach a sufficient intensity or complexity to appear in consciousness as states of mind. They are not unconscious states of consciousness, but they belong to the same phenomenal order as consciousness.

In his interesting discussion of the perception of space, Prof. Baldwin says:—

> "Two general theories of space perception are held by psychologists, and under them may be classified the various attempts made to explain the origin of this idea. These are the *nativist* and the *empirical* theories. Empiricists hold that presentation of extension (and time) are derived through experience from elements which have not the spacial (and temporal) form. On the other hand, nativists maintain that space and time presentations cannot take their origin in data of consciousness which are simply intensive; consequently that these presentations are primitive data of knowledge, native, innate. In other words, the empiricist asserts the reducibility of presentations of space and time, and the nativist asserts their irreducibility."

Now here it seems to us that, if the empiricist claims to reduce the perception of space to sense-impressions, he is manifestly in error; and that, if the nativist bases his contention on the fact that there are over and above sense-impressions, impressions of relation, he is on firm ground. But it is questionable whether he can carry his claim much further.

Prof. Baldwin has a short but important chapter on illusions. We are unable entirely to agree with him in his treatment of the subject. Speaking of illusion proper, he says:—

> "At the outset we find ourselves face to face with a whole class of experiences, in which one mental state is *taken for another*. There are, really, two images involved—one, the rightful image, the presentation, as ordinarily aroused by the stimulus experienced, say the sound of the clock; the other, the image of something different, formed within the domain of the same sense-quality, and usually prominent in consciousness before the time of the illusion, as the alarm of fire, into which the striking of the clock is interpreted."

This does not seem to us altogether satisfactory. Prof. Baldwin, at an earlier stage of his thesis, well brings out the fact that a percept is a mental construction formed at the bidding of a stimulus or sense-impression. Now, an illusion is simply a false and erroneous mental construction. If, to take another of Prof. Baldwin's examples, a man in the half light takes a tree for an Indian, or if a nervous old lady takes a grey donkey for a ghost, at the time of presentation the tree image and the donkey image have no existence. There is one image in each case—that involved in the false and erroneous mental construction. The difference between a true percept and an illusive percept is that the one is confirmable by the process of verification on further examination, and the other is not.

We have left ourselves no space to consider Mr. Baldwin's treatment of reason.

> "The rational function," he says, "is contrasted with the apperceptive function in the absence of the element of process, which constitutes the essential nature of the latter. Apperception is a process, through which the material of acquisition passes in preparation for the higher uses of mind. Reason, on the contrary, is not a process, as the more special term, intuition, given to it implies. It conditions and underlies all mental processes. It is the nature of mind itself as it reveals itself in consciousness."

On this somewhat might be said. But we have already said enough to show that we regard the work as a valuable and stimulating hand-book of psychology, so far as the subject is treated in this instalment. C. Ll. M.

## THE MYOLOGY OF THE RAVEN.

*The Myology of the Raven (Corvus corax sinuatus): A Guide to the Study of the Muscular System in Birds.* By R. W. Shufeldt. (London: Macmillan and Co., 1890.)

With the exception of the brief descriptions in several of our zootomical text-books of certain of the muscles in birds, there has been up to the present time no special manual treating of this subject in detail. The student of avian myology has therefore had some difficulty in obtaining the requisite directions for his work, more especially if the advantages of a scientific library were not within his reach. Such works as those of Gadow in Bronn's "Thierreich," and of Fürbringer in his monumental "Untersuchungen zur Morphologie und Systematik der Vögel," besides being written in German, are not easily obtainable by the greater number of workers. The present book, from the fertile pen of Dr. Shufeldt, fills up this important gap in a highly satisfactory manner.

At first sight, it might appear an objection that Dr. Shufeldt has chosen such a rare bird as the raven as the subject of his work. But as other species of *Corvidæ* are so easily obtainable almost everywhere, it is perhaps even an advantage that the student in using the book cannot follow out every detail slavishly: by making use of some allied form, which agrees in the main, but differs in detail, from the Raven, he will learn more, and at the same time gain more self-reliance.

Though following, as regards nomenclature, the authority of Owen, Carus, A. Milne-Edwards, Huxley, Garrod, Forbes, Selenka, Coues, Fürbringer, Gadow, and others, the author has in doubtful cases introduced names of his own making, and has quoted very freely from Gadow (Bronn's "Thierreich"), whose synonymy is given fully in footnotes throughout the work. These notes indicate very plainly that we have as yet by no means arrived at a satisfactory knowledge of the muscular system in the Vertebrata, and that our existing nomenclature is far from perfect. It is to be

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